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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,782	12/18/2001	Cyrus E. Tabery	50432-293	1966

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EXAMINER	
ISAAC, STANETTA D	
ART UNIT	**PAPER NUMBER**
2812	

DATE MAILED: 04/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/021,782	TABERY ET AL.	
	Examiner	Art Unit	
	Stanetta D. Isaac	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 February 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 2/27/03 have been fully considered but they are not persuasive. Please note on **Fig. 2** that the substrate is not permanently fixed to the stage and therefore moves relative to the laser beam. Applicant contends that the applied art fails to provide continuous movement because applicant has chosen a term that is not actually cited on the reference. However, the reference teaches the term oscillating. One or ordinary skill in the art would recognize that a failure to move the laser continuously (i.e. oscillating) will apply energy beyond the desired goal in forming a thin film transistor having a source/drain regions which are well known in the art.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 3, 4, 8, 9, 10, 11, 12 and 14 rejected under 35 U.S.C. 102(a) as being clearly anticipated by Yamazaki et al. Patent Number 6242292.

4. Yamazaki discloses a semiconductor method substantially as claimed. See **FIGS. 1-6B** where Yamazaki teaches a method of manufacturing a semiconductor device, comprising the steps of:

forming a gate electrode over a substrate; (See **col. 9 lines 26-50**)

introducing ions into the substrate **11** to form source/drain regions (**51, 52**) in the substrate proximate to the gate electrode;

activating a portion of the source/drain regions by laser thermal annealing using a laser; (See **col. 9 lines 26-50**)

moving the laser and the substrate relative to one another; and (See **col. 6 lines 3-45**)

activating another portion of the source/drain regions by laser thermal annealing using the laser,

wherein the movement of the laser and the substrate relative to one another is continuous between and during the steps of activating the portion of the source/drain regions and activating the other portion of the source/drain regions. (See **col. 9 lines 26-50**)

5. Pertaining to claim 3, Yamazaki teaches the invention according to claim 1, wherein each portion of the source/drain regions receives more than one single pulse of energy from the laser. (See **col. 7 lines 1-63**)

6. Pertaining to claim 8, Yamazaki teaches the invention according to claim 6, wherein each portion of the source/drain regions receives more than one single pulse of energy from the laser. (See **col. 7 lines 1-63**)

7. Pertaining to claims 4, 8, 9 and 12, Yamazaki teaches the invention according to claim 8, wherein each pulse from the laser respectively irradiates non-identical portions of the source/drain regions. (See **col. 7 lines 1-63**)

8. Pertaining to claim 10, Yamazaki teaches the invention according to claim 6, wherein the laser and the substrate move relative to one another at a constant velocity.

9. Pertaining to claim 11, Yamazaki teaches a method of manufacturing a semiconductor device, comprising the steps of:

forming a gate electrode over a substrate;

introducing ions into the substrate to form source/drain regions in the substrate proximate to the gate electrode;

activating a portion of the source/drain regions by laser thermal annealing using a pulse of laser energy from a laser; moving the laser and the substrate relative to one another; and

activating another portion of the source/drain regions by laser thermal annealing using another pulse of laser energy from the laser,

wherein the laser and the substrate move relative to one another after each pulse of laser energy and each portion of the source/drain regions receives more than one single pulse of energy from the laser.

10. Pertaining to claim 14, Yamazaki teaches the invention according to claim 11, wherein the laser and the substrate move relative to one another at a constant velocity. (See **col. 6 lines 3-45**)

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 2,5-7, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. Patent Number 6,242,292 in view of prior art

13. Claims 2,5-7, and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. Patent Number 6,242,292 in view of prior art.

14. Pertaining to claims 2 and 7, Yamazaki fails the invention according to claim 1, wherein each portion of the source/drain regions receives no more than one single pulse of energy from the laser. See **page 7 lines 16-22** where the invention according to claim 1,wherein each portion of the source/drain regions receives no more than one single pulse of energy from the laser. In view of prior art it would have been obvious to one of ordinary skill in the art to incorporate the method of prior art into Yamazaki because previous laser thermal annealing applications as illustrated in Fig. 2A (Prior Art), a portion of the surface of the substrate is exposed to a single pulse of laser, and the laser is then moved to irradiate a separate portion of the surface.

15. Pertaining to claims 5, 6, and 13 Yamazaki fails the invention according to claim 1, wherein a spot area of the laser on the substrate is less than 50 millimeters^2.

16. Given the teachings of the references, it would have been obvious to determine the optimum thickness, temperature as well as condition of delivery of the layers involved. *See In re*

Aller, Lancey and Hall (10 USPQ 233-237) "It is not inventive to discover optimum or workable ranges by routine experimentation. Note that the specification contains no disclosure of either the critical nature of the claimed ranges or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. *In re Woodruff*, 919 f.2d 1575,1578,16 USPQ2d 1934, 1934 (Fed. Cir. 1990).

17. Any differences in the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an extent that the difference is really unexpected. *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986)

18. Appellants have the burden of explaining the data in any declaration they proffer as evidence of non-obviousness. *Ex parte Ishizaka*, 24 USPQ2d 1621, 1624 (Bd. Pat. App. & Inter. 1992).

19. An Affidavit or declaration under 37 CFR 1.132 must compare the claimed subject matter with the closest prior art to be effective to rebut a prima facie case of obviousness. *In re Burckel*, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979).

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

21. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanetta D. Isaac whose telephone number is 703-308-5871. The examiner can normally be reached on Monday-Friday 7:30am -5:30pm.

23. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Nebling can be reached on 703-308-3325. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-3432 for After Final communications.

24. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Stanetta Isaac
Patent Examiner
May 20, 2003